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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,626	01/27/2004	Andres F. Zuluaga	0010.0009US1	2256

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EXAMINER

SHAHRESTANI, NASIR

ART UNIT PAPER NUMBER

3737

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/765,626

Applicant(s)

ZULUAGA ET AL.

Examiner

Nasir Shahrestani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/27/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 12-14, 16-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ramsbottom (U.S. Pub. No.: 2003/0179448).

Regarding claim 1, Ramsbottom teaches at least two optical fibers (elements 11 & 12); side firing terminations (elements 15, 16 & fig. 7a); and beam-shaping apertures construed by examiner to be that of exit faces (elements 15, 16) for controlling light propagating between the side-firing terminations and a region lateral to the probe (par. [0016]).

Regarding claims 8, 12-13, Ramsbottom further teaches wherein the side firing terminations comprise at least one coreless block attached or fused to the ends of the fibers (elements 15, 16; fig. 6).

Regarding claim 14, Ramsbottom further teaches at least one capillary tube (cylindrical main body 5) over side firing terminations (fig. 6a) of the optical fibers and providing beam-shaping apertures (see fig. 6a, side openings).

Regarding claim 16-21, Ramsbottom teaches the medical probe further comprising capillary tubes over the side firing terminations (tubes 1 and 5), being attached and/or bonded to

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each other. Furthermore, examiner construes the separation between the aforementioned tubes to be forming a spacer block or wedge spacer and are integral with at least one of the tubes. (See figs. 6b and 6d).

Regarding claim 22, Ramsbottom further teaches the beam shaping apertures to be longitudinally offset along an axis of the probe (fig. 6).

Claims 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Boppart (U.S. Patent No.: 6,485,413).

Boppart teaches a method of gather optical information using a medical probe comprising: transmitting an optical signal in a first single mode fiber (element 58); directing the optical signal to a region lateral to the probe with a side firing termination to first fiber (fig. 13, element 176); controlling a beam shape of the optical signal (window 54); collecting optical information with a second multimode optical fiber (element 59) and transmitting the optical information to an analyzer (elements 38, 42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7, 9-11, 15, 23, 28-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramsbottom (U.S. Pub. No.: 2003/0179448) in view of Boppart (U.S. Patent No.: 6,485,413).

Regarding claims 2-4, 23, 28-30 Ramsbottom does not teach the use of just two optical fibers. Boppart teaches the use just two fibers (col. 8 line 61), as well as three or eight or more fibers (element 288); It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the two fibers, one for transmission and the other for reception as taught by Boppart, or to have used a multiple fiber bundle in order to provide for more accurate illumination of tissue surfaces (see Boppart col. 30 lines 58-67; col. 31 lines 1-34). Boppart further teaches at least one single mode fiber and at least one multimode fiber (col. 8 lines 50-67). It would furthermore been obvious to integrate the aforementioned single and multimode fibers in order to provide for improved decision making in diagnostic or therapeutic procedures (see Boppart col. 8 lines 50-67).

Regarding claim 5, 31 Boppart further teaches flexible fibers to be have cores ranging in tens of microns in diameter making the flexible fibers ideal for integration in endoscope accessory ports or used independently for vascular access of small arteries and veins (col. 31 lines 40-45) hence making it obvious to one of ordinary skill in the art to use with the apparatus as taught by Ramsbottom.

Regarding claims 6-7, 9-10, 32-33, Ramsbottom teaches all the limitations of claim 1 and 28 but does not teach angled ends of fibers however Boppart teaches angled fiber ends (angle-cleaved optical fiber 58) formed by polishing (col. 19 lines 42-67). The use of the angle-

cleaved fibers would help to reduce the degree of optical back-reflections, which occur from the normal incident faces of the fiber.

Regarding claims 11 & 37, Ramsbottom teaches all the limitations of claims 1 and 28 but does not teach wherein the at least one angled endface being metal coated. Boppart et al. teaches a medical probe comprising a fiber or lens (element 63) being coated with a metalized material (fig. 4f). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the fibers as taught by Ramsbottom and to have further coated endfaces so that they are attracted to appropriately charged/magnetized contacts (see Boppart col. 13 lines 12-29).

Regarding claims 15, 41, It would have been obvious to one of ordinary skill in the art to have modified the aperture as taught by Ramsbottom and to have replaced the single large aperture or opening with multiple bores or openings, one for element 15 and one for element 16 in order to provide for less interference in illumination of each fiber.

Regarding claim 34-36, 38-39, Ramsbottom in view of Boppart teaches all the limitations of claim 28 and Ramsbottom further teaches wherein side-firing terminations comprise at least on coreless block being attached or fused to optical fibers (elements 15, 16; fig. 6) and an angled end face (angle-cleaved optical fiber 58) formed by polishing (col. 19 lines 42-67).

Regarding claims 40, Ramsbottom in view of Boppart teaches all the limitations of claim 28 and Ramsbottom further teaches at least one capillary tube (cylindrical main body 5) over side firing terminations (fig. 6a) of the optical fibers and providing beam-shaping apertures (see fig. 6a, side openings).

Regarding claims 42-47, Ramsbottom in view of Boppart teaches all the limitations of claim 28 and Ramsbottom further teaches the medical probe further comprising capillary tubes over the side firing terminations (tubes 1 and 5), being attached and/or bonded to each other. Furthermore, examiner construes the separation between the aforementioned tubes to be forming a spacer block or wedge spacer and are integral with at least one of the tubes. (See figs. 6b and 6d).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nasir Shahrestani whose telephone number is 571-270-1031. The examiner can normally be reached on Mon.-Thurs: 7:30-5:00, 2nd Friday: 7:30-4:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Nasir Shahrestani
12/20/2006



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